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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/506,471

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Arthur Marshall Stoneham

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EXAMINER

SAYADIAN, HRAYR

ART UNIT

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2815

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/506,471	<b>Applicant(s)</b> STONEHAM ET AL.	
	<b>Examiner</b> HRAYR A. SAYADIAN	<b>Art Unit</b> 2815	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 1 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☐ Responsive to communication(s) filed on 25 March 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) \_\_\_\_\_ is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☒ Claim(s) 1-28 are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

### **DETAILED OFFICE ACTION**

1. This Office Action includes a Requirement restricting among distinct inventions and another Requirement restricting among Species. The Office will issue a non-Responsive communication to a reply not completely responding to this Requirement.

See, infra, Summary of the Restriction Requirements, repeating the list of inventions Applicant must elect one of.

#### **Restriction Requirement**

2. Applicant is required under 35 U.S.C. § 121 to elect one of the following patentably distinct inventions for prosecution on the merits:

Group I. Claims 1-18, drawn to a gate for quantum information, classified in class 257, subclass 24.

Group II. Claims 19-26, drawn to an array of gates, classified in class 257, subclass 204+.

Group III. Claims 27 and 28, drawn to a method for producing a surface light emitting semiconductor laser element, classified in class 438.

Groups I and II are related as a subcombination and combination, respectively. See, for example, M.P.E.P. § 806.05(c).

Groups I and II and Group III are related as a product made and a method/process for making a product. See, for example, M.P.E.P. § 806.05(f)

**A complete reply to this requirement must:**

- 1. elect an invention to be examined even though the requirement may be traversed (37 CFR § 1.143); and**
- 2. list all claims reading on the elected invention, including any claims subsequently added.**

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**An argument that all claims are allowable, or that the requirement is in error, is nonresponsive unless accompanied by an election. See, for example, M.P.E.P § 818.03(b).**

To preserve a right to petition under 37 CFR § 1.144, Applicant must elect with traverse. See, for example, M.P.E.P. § 818.03(c). An untimely traversal loses the right to petition under 37 CFR § 1.144. A traversal must be presented at the time of election to be considered timely.

If the reply does not distinctly and specifically point out supposed errors in the restriction requirement, the election shall be treated as an election without traverse. See, for example, M.P.E.P § 818.03(a).

Should Applicant traverse on the ground that the inventions are not patentably distinct, Applicant should submit evidence or identify such evidence now of record showing the inventions to be obvious variants or clearly admit on the record that this is the case. In either instance, if Examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. § 103(a) of the other invention.

If claims are added after the election, Applicant must indicate which of these claims are readable on the elected invention. See M.P.E.P. § 809.02(a).

Upon the cancellation of claims to a non-elected invention, Applicant must amend the inventorship complying with 37 CFR § 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Amending inventorship must be accompanied by a request under 37 CFR § 1.48(b) and include the fee required under 37 CFR § 1.17(i).

Restriction for examination purposes is proper because the above-identified inventions are independent or distinct for the reasons given below, and there would be a serious search and examination burden if restriction were not required since at least one of the following applies:

- a) the inventions have acquired a separate status in the art in view of their different classification;
- b) the inventions have acquired a separate status in the art due to their recognized divergent subject matter;
- c) the inventions require a different field of search (for example, searching different classes/subclasses or electronic resources, or employing different search queries);

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d) the prior art applicable to one invention would not likely be applicable to another invention; and

e) the inventions are likely to raise different non-prior art issues under 35 U.S.C. § 101 and/or 35 U.S.C. § 112, first paragraph.

3. A Restriction Requirement is proper if: (I) the inventions are "distinct," and (2) examining the inventions together would be a "serious burden." See, M.P.E.P. § 803I. See also M.P.E.P. § 808, stating that a proper restriction requirement must satisfy both prongs.

In the case of a combination and subcombination, the inventions are distinct if both of the following can be shown: (1) that the patentability of the combination as claimed does not require particulars of the subcombination as claimed, and (2) that the subcombination can be shown to have utility either by itself or in another materially different combination. See, for example, M.P.E.P. § 806.05(c)).

The above-identified inventions are distinct from each other because of the following reasons:

In the instant case, invention II (combination A-Bbroad) is based on an array and general description of a gate, and may be patentable by virtue of the subcombination A, wherein the subcombination Bbroad does not distinguish over the prior art. Additionally, the patentability of the combination A-Bbroad can be in the combination itself.

Moreover, invention I (subcombination Bspecific) is based on the particulars of the gate itself, and has utility by itself when, for example, used as an individual device in a system of other non-gate elements.

The first prong of the test therefore is satisfied.

In the instant case, moreover, examining the inventions together is a serious burden on Examiner because, as shown by their different classifications, the inventions have acquired a separate status in the art. Additionally, since the inventions are differently classified, examining the inventions is a serious burden because examining them requires searching different fields. See, for example, M.P.E.P. § 808.02, describing how "serious burden" on Examiner is established.

The second prong of the test therefore is also satisfied.

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Accordingly, restricting the claims directed to invention Group I from those directed to invention of Group II is proper.

4. A Restriction Requirement is proper if: (1) the inventions are "distinct," and (2) examining the inventions together would be a "serious burden." See, M.P.E.P. § 803I. See also M.P.E.P. § 808, stating that a proper restriction requirement must satisfy both prongs.

In the case of a product made and a method/process for making a product, the inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make another and materially different product, or (2) that the product as claimed can be made by another and materially different process. See, for example, M.P.E.P. § 806.05(f).

The above-identified inventions are distinct from each other because of the following reasons:

In the instant case, Group III invention (the process of making a product) can be used to make a SiO<sub>2</sub> substrate, which are classified in class 257, subclass 760, which are products different than that of inventions I and II.

The first prong of the test therefore is satisfied.

In the instant case, moreover, examining the inventions together is a serious burden on Examiner because, as shown by their different classifications, the inventions have acquired a separate status in the art. Additionally, since the inventions are differently classified, examining the inventions is a serious burden because examining them requires searching different fields. See, for example, M.P.E.P. § 808.02, describing how "serious burden" on Examiner is established.

The second prong of the test therefore is also satisfied.

Accordingly, restricting the claims directed to invention of Groups I and II from that of Group III is proper.

#### **Election Requirement**

5. Additionally, Applicant is required under 35 U.S.C. § 121 to elect one of the following patentably distinct inventions for prosecution on the merits:

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Species A: An embodiment wherein the electron system comprises one or more donors.

Species B: An embodiment wherein the electron system comprises one or more acceptors.

Applicant is required under 35 U.S.C. § 121 to elect a single disclosed invention for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable.

A Requirement to Elect between Species is proper if: (1) the Species are "distinct," and (2) examining the Species together would be a "serious burden." See, M.P.E.P. § 8031. See also M.P.E.P. § 808, stating that a proper restriction requirement must satisfy both prongs.

The above-identified Species are patentably distinct because they have mutually exclusive characteristics. In addition, these Species are not obvious variants of each other based on the current record. The first prong of the test therefore is satisfied.

Additionally, searching for and examining these distinct Species together causes serious burden. In the instant case, searching for the mutually exclusive characteristics of the Species requires different fields of search (including searching different classes/subclasses and electronic resources, and employing different search queries). And the prior art applicable to one Species would not likely be applicable to other Species. See, for example, M.P.E.P. § 808.02(C). Furthermore, the Species are likely to raise different non-prior art issues under 35 U.S.C. § 101 or 35 U.S.C. § 112, first paragraph, or both. The second prong of the test therefore is also satisfied.

Accordingly, requiring election between the different Species is proper.

**A complete reply to this requirement must:**

- 1. elect an invention to be examined even though the requirement may be traversed (37 CFR § 1.143); and**
- 2. list all claims reading on the elected invention, including any claims subsequently added.**

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**An argument that all claims are allowable, or that the requirement is in error, is nonresponsive unless accompanied by an election. See, for example, M.P.E.P § 818.03(b).**

To preserve a right to petition under 37 CFR § 1.144, Applicant must elect with traverse. See, for example, M.P.E.P. § 818.03(c). An untimely traversal loses the right to petition under 37 CFR § 1.144. A traversal must be presented at the time of election to be considered timely.

If the reply does not distinctly and specifically point out supposed errors in the restriction requirement, the election shall be treated as an election without traverse. See, for example, M.P.E.P § 818.03(a).

Should Applicant traverse on the ground that the Species are not patentably distinct, Applicant should submit evidence or identify such evidence now of record showing them to be obvious variants or clearly admit on the record that this is the case. In either instance, if Examiner finds one of the Species unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. § 103(a) of the other Species.

If claims are added after the election, Applicant must indicate which of these claims are readable on the elected invention. See M.P.E.P. § 809.02(a).

Upon the cancellation of claims to a non-elected invention, Applicant must amend the inventorship complying with 37 CFR § 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Amending inventorship must be accompanied by a request under 37 CFR § 1.48(b) and include the fee required under 37 CFR § 1.17(i).

Upon the allowance of a generic claim, Applicant will be entitled to consideration of pending claims to additional Species which depend from, or otherwise require all the limitations of, an allowable generic claim as provided by 37 CFR § 1.141.

## CONCLUSION

6. A shortened statutory period for reply to this Office Action is set to expire **ONE MONTH** from the mailing date of this Office Action. Applicant is reminded of the extension of time policy as set forth in 37 CFR § 1.136(a).



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Any inquiry concerning this communication or earlier communications from an Examiner should be directed to Examiner Hrayr A. Sayadian, at (571) 272-7779, on Monday through Friday, 7:30 am – 4:00 pm ET.

If attempts to reach Mr. Sayadian by telephone are unsuccessful, his supervisor, Supervisory Primary Examiner Kenneth Parker, can be reached at (571) 272-2298. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available only through Private PAIR. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. The Electronic Business Center (EBC) at 866-217-9197 (toll-free) may answer questions on how to access the Private PAIR system.

/HAS/

/Kenneth A Parker/

Supervisory Patent Examiner, Art Unit 2815